

Tariffville Road Bridge  
(Bridge No. 1587)  
Spanning the Farmington River on  
Tariffville Road (Connecticut Route 315)  
Simsbury  
Hartford County  
Connecticut

HAER No. CT-40

HAER  
CONN  
2-SIMSB,  
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
MID-ATLANTIC REGION, NATIONAL PARK SERVICE  
DEPARTMENT OF THE INTERIOR  
PHILADELPHIA, PENNSYLVANIA 19106

HAER  
CONN  
2-SIMSB,  
1-

# HISTORIC AMERICAN ENGINEERING RECORD

TARIFFVILLE ROAD BRIDGE      HAER No. CT-40  
(BRIDGE NO. 1587)

Location:                      Tariffville Road  
                                 (Connecticut Route 315),  
                                 spanning the Farmington  
                                 River in Simsbury

                                 UTM: 18.683780.4640200  
                                 Quad: Tariffville, 1:24000

Date of Construction:        1894

Engineer/Fabricator/  
Contractor:                      John E. Buddington

Present Owner:                State of Connecticut  
                                 Department of Transportation  
                                 Wethersfield, Connecticut 06109

Present Use:                    Vehicular bridge

Significance:                  Tariffville Road Bridge is  
                                 significant as a representative  
                                 example of 19th-century truss  
                                 engineering, one of few pre-  
                                 1900 through-trusses remaining  
                                 in Connecticut. Its pinned  
                                 connections and ornamental  
                                 railing are typical of the  
                                 period. Designed and built by  
                                 New Haven engineer J. E.  
                                 Buddington, some of its members  
                                 and its unusual floor system  
                                 reflect the wide range of  
                                 bridge building practices still  
                                 current in the 1890s, before  
                                 engineering became thoroughly  
                                 standardized.

Project Information:          The bridge is scheduled for  
                                 replacement. This documenta-  
                                 tion was undertaken in response  
                                 to a request by the State  
                                 Historic Preservation Office.

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Description of Bridge and Setting

Tariffville Road Bridge is a steel and wrought-iron pin-connected Parker through-truss. Spanning 158', the bridge carries a one-lane, 15'-wide roadway over the Farmington River in Simsbury, Connecticut. The bridge is numbered 1587 in the State Highway Bridge Log. Although built by the Town of Simsbury, the structure became a state-owned bridge when Tariffville Road was incorporated into the State Highway System and designated Route 315. The bridge was designed and built in 1894 by John E. Buddington, an engineer from New Haven, Connecticut.

The land immediately surrounding the bridge is low-lying and undeveloped, with woods and wetlands both to the north and south. (Although the bridge lies on a northwest-southeast axis, the ends are termed east and west according to the general direction of Tariffville Road). The bridge typically has about 10' of clearance above the level of the river.

The 10-panel truss includes a mixture of standard and unconventional components. The top chord is a box girder, built up of plates, angles and lattice bars, and measures 12" x 13" in section. The lower chord is a 5" x 15" plate girder. Most vertical members are box girders with two latticed sides, but verticals in the end panels consist of two 5 1/2"-wide bars separated by cast-iron spools spaced about 2' apart. The diagonals are of two types: those at the ends are paired 3" eyebars, while those in the center four panels consist of a pair of 6"-wide bars connected internally by bent stiffener bars. There are no counter-diagonals. The middle six panels have a longitudinal brace of paired channels halfway up. The portal strut, as well as the sway bracing that appears in alternating panels, consists of a lattice of angles; knee braces appear at the portals only. The top lateral bracing is made up of angles running diagonally, one per panel, so that they alternate direction but do not cross. Total depth of the truss is about 18' in the center. The bridge provides 13'4" of clearance at the portals.\*

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\*Dimensions are taken from the Connecticut Historic Bridge Inventory fieldwork form compiled by Bruce Clouette on June 20, 1990. A thorough search for original drawings of the bridge, including the records of the Simsbury Town Engineer and the Connecticut Department of Transportation, proved fruitless.

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The floor system has been substantially reconfigured. Originally, a series of small floor beams were connected directly to the lower chord, four per panel; remnants of the original beams, along with the connector angles, are still in place. The present, larger floor beams are hung with threaded rods from the lower panel points. In a subsequent modification, the depth of these floor beams was increased by adding I-beams to the top flanges; these bear stringers for modern corrugated metal flooring. Bituminous paving currently makes up the roadway surface; presumably the original deck was wood planking.

Above the portal at each end is a builder's plate with the inscription

	1894	
W. H. WHITEHEAD,		SELECTMEN
W. J. HAYES,	}	OF THE
N. ST JOHN		TOWN OF SIMSBURY.

J. E. BUDDINGTON,  
ENGINEER AND CONTRACTOR,  
NEW HAVEN CONN.

Other ornamental details include a lattice railing on both sides of the roadway, now raised up above modern guardrail, and remnants of decorative cast-iron newels with orb finials, one at each end of the bridge.

The abutments are built of large, irregularly shaped brownstone blocks, currently pointed with modern concrete mortar.

The bridge is relatively unchanged from its original appearance. Other than the loss of two newels, the raising of the railings, and the floor alterations, the bridge appears to be entirely original.

#### Historical Context

Like most Connecticut towns, Simsbury in the late 19th century replaced many of its wooden bridges with metal trusses. By the 1890s, such trusses had become relatively inexpensive, and offered superior strength and durability compared with their wooden predecessors. Simsbury had several long bridges over the Farmington River, a large fast-flowing river subject to sudden floods. In 1892 the town created a bridge fund financed by bonds, thus allowing the cost of new bridges to be amortized

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over a long period. The bridge fund paid for Tariffville Road Bridge and at least one other metal-truss bridge constructed in the 1890s. Although other Connecticut towns had borrowed money when floods wiped out several bridges at once, and the practice later became universal, Simsbury's use of special bonds for ongoing bridge replacement was unusual for that period.

This crossing was an important one at the time the bridge was built. The road that is now Connecticut Route 315 connected Simsbury Center with Tariffville, a manufacturing village that first grew up around a carpet-weaving mill built on the Farmington River in 1824. Terry's Plain Road, intersecting Tariffville Road at the east end of the bridge, connected Simsbury with the center of Bloomfield, the next town to the east.

Technological Significance

This bridge is significant as a substantial, well-preserved example of 19th-century truss engineering. Distinguishing characteristics of the period include the pinned connections, a technique almost entirely superseded by riveted joints by 1900; the decorative details, which signal the bridge's Victorian origins; and idiosyncratic features that locate the bridge in a period in American engineering when experimentation was still occurring.

The bridge's Parker truss form is a variant of the Pratt truss, in which the polygonal top chord makes the bridge increase in depth toward the center. Although the angles in the top chord required greater effort in design and fabrication, the Parker truss saved metal by strengthening the truss where it needed it the most. The Parker design became standard for long highway trusses in the 20th century.

The bridge's unusual structural members indicate the range of variations that preceded the 20th century's greater standardization of highway truss engineering. The use of cast-iron spools to stiffen the end-panel verticals is found on only one other truss in Connecticut (Drake Hill Road Bridge in Simsbury, a 12-panel twin to this bridge that Buddington also designed). The use of bent internal lattice bars is also unusual, though it appears in the top-chord box girders of early New Haven Railroad highway overpasses and in small highway bridges produced by Boston Bridge Works in the 1880s. Perhaps these techniques provided some small savings in fabrication expense over the more common method of stiffening

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such members, which was to use flat lattice bars or stay plates riveted to the flanges of angles. Finally, the original system of supporting the floor continuously along the length of the lower chord, rather than at panel points, is rarely found on highway bridges. This technique, which accounts for the unusually heavy lower-chord member, appeared occasionally in railroad trusses. Neither this type of floor support, nor the other unusual members, became part of the standard bridge building practice that emerged around 1900.

John E. Buddington, Engineer and Contractor

John E. Buddington (1853-1931) had a long career in bridge engineering. He was born and received his early schooling in Shelton, Connecticut, where his father worked as a carpenter. He went on to study engineering at Yale's Sheffield Scientific School. At Yale, Buddington listed his religion as "Free Thinker," prefiguring perhaps his independent approach to bridge design. Graduating in 1877, he wrote a senior thesis that attacked the state's most important railroad, the New York, New Haven, and Hartford, with a stinging criticism of its new Housatonic River bridge.\* The railroad apparently bore him no ill will, since it employed him first as an assistant engineer in 1878, and then from 1881 to 1886 as chief engineer. In between, Buddington worked for Connecticut's leading fabricator of highway bridges, the Corrugated Metal Company, later known as Berlin Iron Bridge.

Buddington began working as an independent consulting engineer in the 1880s, and by 1892 he was not only designing bridges but also arranging for their fabrication and erection, as evidenced by Simsbury's Drake Hill Road Bridge. In an 1897 advertisement, he identified himself as an "Engineer and Contractor" for "wrought iron and steel structural work, bridges, buildings, roofs, girders, etc."; the advertisement included an illustration of one of his Parker trusses in Simsbury.

Buddington is significant as a late example of the bridge engineer turned entrepreneur. He appears to have built a dozen

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\*The legend that Buddington's critique caused the railroad to remove the 1871 bridge is unfounded; the Housatonic bridge remained in place until 1884. Portions were later re-used as highway bridges, one of which survives today as the Riverside Avenue Bridge in Greenwich, Connecticut.

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or more bridges in a brief period of prosperity as a manufacturer. Bridge-building firms run by one engineer were common in the 1870s and 1880s, but by 1900 a few large companies dominated the business. Lacking both his own shop facilities and a system for widespread marketing, Buddington probably could not compete with either the regional or national firms. Although he remained in practice as a consulting engineer through the 1920s, he seems to have done little bridge work after 1910. His daughter's recollections in 1971 identified the following as Buddington designs:

- Chapel Street West River Bridge, New Haven, 1882
- Bridge in Yonkers, New York, 1891
- Mt. Carmel Bridge, Hamden, 1892
- Four bridges in Simsbury, 1890s
- Gulf Street Bridge, Milford, 1894
- Far Mill Bridge, Shelton, 1895
- Maple Street Bridge, Ansonia, 1898
- Bridge in Ware, Massachusetts, 1902
- Bridge in Manchester, 1907
- Town Hall Bridge, Milford, 1910
- Kissing Bridge, Milford, 1912
- Bridge near meadows at Devon, Milford, no date
- Oak Street Bridge, New Haven, no date
- Five bridges over Lake Whitney, Hamden, no dates

Today, only three of Buddington's Connecticut bridges are known to survive: Drake Hill Road and Tariffville Road in Simsbury and Chapel Street West River Bridge in New Haven. Buddington's responsibility for the latter appears limited. Although at the time he was working for the bridge's fabricator, Corrugated Metal Company, the design was credited to the New Haven City Engineer. Thus the Simsbury bridges appear to stand as the chief monuments to Buddington's career.

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**Simsbury**

**Hartford County, CT**

**Sketch Map**

